Schlüter Systems®

PROFILE OF INNOVATION

Schlüter®-KERDI-LINE

Drainage

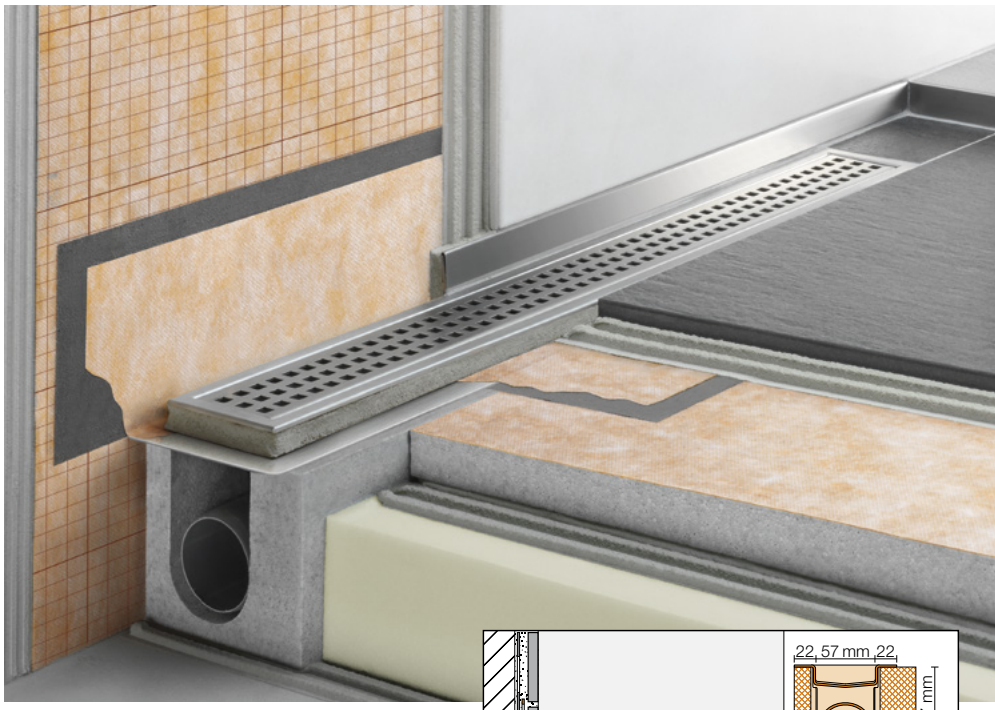
linear drains for bonded waterproofing assemblies

8.7

Product data sheet

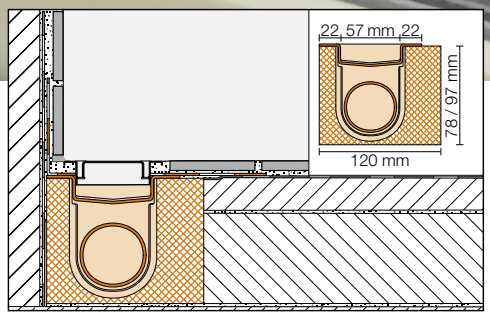
Application and Function

Schlüter®-KERDI-LINE is a component linear drainage system for the construction of floor level showers with ceramic tiles, natural stone, or other coatings.
It consists of a formed stainless steel channel body with a grate and frame structure that can be seamlessly adjusted to the thickness of the covering from 3 to 25 mm with the help of the installation aid included in the set.
Schlüter®-KERDI-LINE-H with horizontal drain features an integrated odour trap and a drain body.
Height of channel support:
DN 40 (40 mm) = 78 mm
DN 50 (50 mm) = 97 mm
Schlüter®-KERDI-LINE-H 50 G2 with front-facing horizontal drainage is equipped with an odour trap that is integrated into the drain body. In accordance with DIN 1253, it has a drain capacity of ≥ 0.8 l/s and a water trap height of 50 mm. Height of channel support:
DN 50 (50 mm) = 120 mm
Schlüter®-KERDI-LINE-F with horizontal drain toward the front is equipped with an odour trap that is integrated into the drain.
Height of channel support:
DN 40 (40 mm) = 60 mm
Schlüter®-KERDI-LINE-V, -VS, -VOS for vertical drainage, e.g. through a floor structure, is available either with the odour trap integrated into the drain body (KERDI-LINE-V) or with a pipe siphon (KERDI-LINE-VS)– also available with offset drain outlet (KERDI-LINE-VOS).
Height of channel support:
DN 50 (50 mm) = 24 mm
Schlüter®-KERDI-LINE-V 50 G2 with vertical drainage is equipped with an odour trap that is integrated into the drain body.

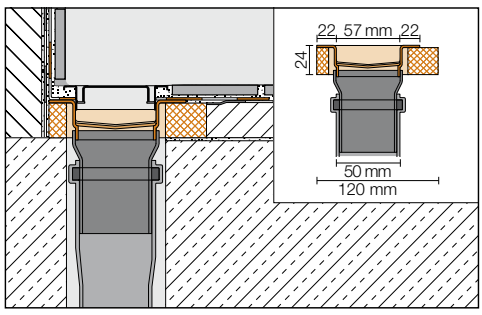


In accordance with DIN 1253, it has a drain capacity of ≥ 0.8 l/s and a water trap height of 50 mm.
Height of channel support:
DN 50 (50 mm) = 48 mm

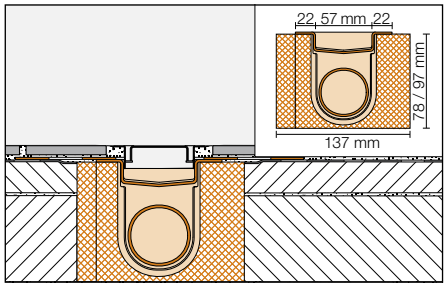
For quick and easy installation, the channel body for KERDI-LINE-H50 and H40 is simply inserted into the precisely matching polystyrene channel support. Because of the drain configuration, the channel body and the channel support for Schlüter®-KERDI-LINE-F are permanently attached to one another.
Schlüter®-KERDI-LINE can be universally used for centred installation in floor or wall areas.



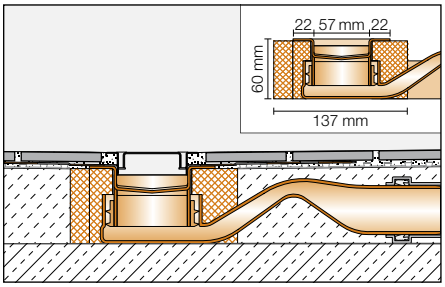
Schlüter®-KERDI-LINE-H



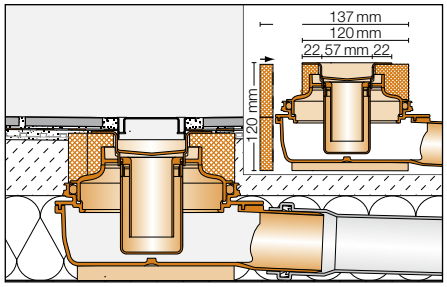
Schlüter®-KERDI-LINE-V



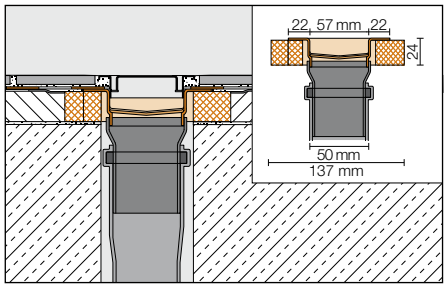
Schlüter®-KERDI-LINE-H (intermediate installation)



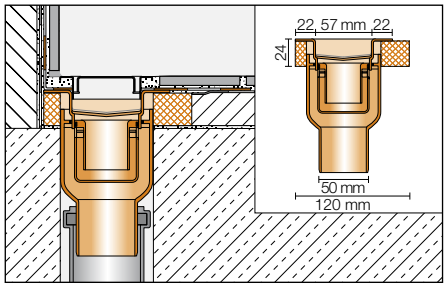
Schlüter®-KERDI-LINE-F (intermediate installation)



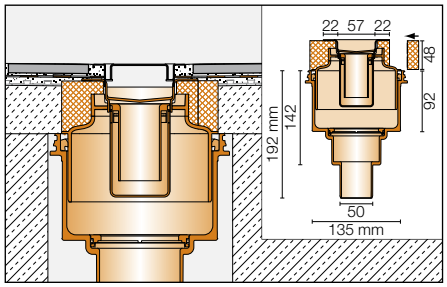
Schlüter®-KERDI-LINE-H 50 G2 (intermediate installation)



Schlüter®-KERDI-LINE-V GSE (intermediate installation)



Schlüter®-KERDI-LINE-V GE (perimeter installation with odour trap)



Schlüter®-KERDI-LINE-V 50 G2 (intermediate installation)

Length of linear drainage KERDI-LINE-H , -H 50 G2 and -V, -VS, -V 50 G2:
50 cm to 180 cm
(VOS = off-centre drain outlet from 70 mm to 120 mm),
in increments of 10 cm
Length of linear drainage KERDI-LINE-F:
50 cm to 120 cm,
in increments of 10 cm
A collar made of Schlüter®-KERDI is adhere to the adhesive flange on all sides of the channel body. It ensures the reliable connection of the channel body to the bonded waterproofing assembly, both in the floor area and on upright walls.
The visible surface of the frame and the grate, which is available in a closed or punched design or with square perforations, consists of brushed stainless steel. The design grate is also available as a 10 mm deep tile pan for tile inserts.
A frameless covering support (Schlüter®-KERDI-LINE-D) that is universally suitable for all heights is also available.

Note:

The matching sloped tray Schlüter®-KERDI-SHOWER-L with integrated KERDI waterproofing (see Product Data Sheet 8.8) can be installed with assemblies using Schlüter®-KERDI-LINE-H and -V up to a channel length of 120 cm. The installation of a sloped screed is also possible. The surface of the screed must be waterproofed with Schlüter®-KERDI (see Product Data Sheet 8.1) or Schlüter®-DITRA 25 (see Product Data Sheet 6.1).
The installation of a sloped screed is necessary for Schlüter®-KERDI-LINE-H50 G2, V50 G2, and KERDI-LINE-F due to the design of the drain position. In this case, the screed must be covered with Schlüter®-DITRA 25 (see product data sheet 6.1) at the surface for waterproofing. Alternative fixing methods are possible, please consult our Technical Department for advice.
The matching system profiles Schlüter®-SHOWERPROFILE-S and -R (see Product Data Sheet 14.1) are available for creating neat connections to the floor or wall. Schlüter®-SHOWERPROFILE-S has a tapered design to match the shape of the sloping sides. The surrounding walls must be covered with Schlüter®-KERDI (see Product Data Sheet 8.1) for waterproofing. As an alternative, Schlüter®-KERDI-BOARD (see Product Data Sheet 12.1) can be used to create a waterproofing assembly.

Material

The channel bodies with lengths up to 120 cm are made of formed stainless steel V4A (material no. 1.44404 = AISI 316L). From lengths of 130 cm, they are made of angled and welded stainless steel V4A (material no. 1.44404 = AISI 316L). The channel bodies feature an adhesive flange with a factory-attached Schlüter®-KERDI collar on the surface. This is a soft polyethylene waterproofing membrane with fleece fabric laminated on both sides.
Depending on the type, drain bodies are made of high-impact polypropylene (PP) or acrylonitrile butadiene styrene (ABS).
The odour trap is made of fibre-reinforced polypropylene (PP).
The stainless steel frame and grates consist of V4A (material no. 1.4404 = AISI 316L).
The channel support is made of pressure resistant, expanded polystyrene (EPS).

Material properties and areas of application:

The channel body, the frame, and the grates are categorised as Class K3 on the basis of DIN EN 1253 (BS EN 1253), Gullies for Buildings. These include areas without vehicle traffic, such as wet rooms in apartments, nursing homes, hotels, schools as well as public bathrooms and shower facilities. The channel bodies, frames and grates are designed to withstand the use of wheelchairs. Schlüter®-KERDI-LINE is made of V4A (material no. 1.4404 = AISI 316L), which is particularly suitable for high mechanical impact or special exposure to chemicals.
Even stainless steel of quality 1.4404 is not resistant to all chemical stresses, and may be affected, e.g., by hydrochloric and hydrofluoric acid or certain chloride and brine concentrations. In certain cases, this also applies to seawater pools. In special cases, the suitability of the selected floor drainage system must be verified based on the anticipated chemical, mechanical, and/or other stresses. The use of aggressive detergents should be avoided.

Notes

The set includes a special cleaning brush with instructions for easy periodic cleaning of the odour trap and the channel body. All cleaning agents must be free of hydrochloric and hydrofluoric acid. Avoid contact with other metals, such as regular steel, to prevent corrosion. This also includes installation tools such as trowels or steel wool, e.g. for the removal of mortar residue. Do not use abrasive cleaning agents on the sensitive surfaces. We recommend the use of the stainless steel cleaning polish Schlüter®-CLEAN-CP.

Installation

The following steps explain the installation of the linear drainage systems. For detailed descriptions please refer to the installation instructions for the following products:
Schlüter®-KERDI-LINE-H
Schlüter®-KERDI-LINE-H 50 G2
Schlüter®-KERDI-LINE-F
Schlüter®-KERDI-LINE-V
Schlüter®-KERDI-LINE-V 50 G2
Schlüter®-KERDI-LINE-D (covering support)

Installation with low construction height:
Schlüter®-KERDI-LINE-H, -H 50 G2 and -F are designed for horizontal drainage to a floor level. Schlüter®-KERDI-LINE-F is particularly well suited for renovation projects due to its low assembly height of just 60 mm. If drainage through a floor level is a possibility, an installation height of ≥ 24 mm can be achieved with Schlüter®-KERDI-LINE-V.

Schlüter®-KERDI-LINE-H
Horizontal drain

1. The channel support is installed on a level substrate with the appropriate height. To offset uneven sections or for height adjustment, the channel support may also be installed and aligned over several, sufficiently spaced spots of mortar or on a full layer of levelling screed.
   For wall installation, the channel body must be aligned in accordance with the thickness of the wall covering. For intermediate installation, use the supplied filling strip to create symmetrical dimension for the channel support.
   Note: If the building project is subject to sound insulation requirements, install a suitable sound insulation below the channel support and attach an edge insulation strip along the perimeter.
2. Fit the channel body into the channel support together with a custom cut drain pipe for connecting to the drainage system of the building. Perform a leak test.
3. Next abut the sloped tray Schlüter®-KERDI-SHOWER-L, together with the levelling board if necessary , to the precisely installed Schlüter®-KERDI-LINE-H drainage channel at the correct height, flush with the upper edge of the channel support (see Product Data Sheet 8.8).
   As an alternative, you can also install a sloped screed at the correct height that is flush with the upper edge of the channel support. Schlüter®-BEKOTEC-DPS Dry Pack screed can be used for creating the sloped screed requirements.
4. To integrate the Schlüter®-KERDI collar, apply the sealing adhesive Schlüter®-KERDI-COLL-L (see Product Data Sheet 8.4) to the adjoining waterproofing assembly with a 3 x 3 mm or 4 x 4 mm notched trowel and completely embed the Schlüter®-KERDI collar in this assembly. Observe the curing times of all materials. Use Schlüter®-KERDI-COLL-L to tightly seal the wall connections with Schlüter®-KERDI-KEBA.
   Installation with low construction height: Schlüter®-KERDI-LINE-H is designed for horizontal drainage on the floor level. If drainage is to go through at floor level, an installation height of ≥ 22 mm can be achieved with Schlüter®-KERDI-LINE-V.

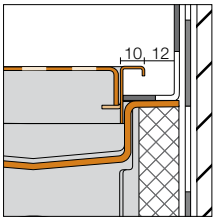


Fig. 1.
Align the channel support

Fig. 2.
Insert the channel body

Fig. 3.
Evenly install the levelling board

Fig. 3.
Slide the sloped tray under the edge of the channel body

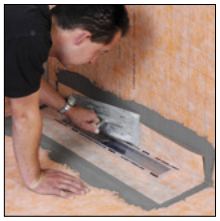
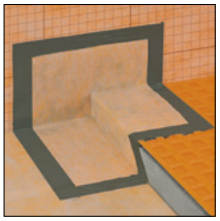


Fig. 4.
Adhere Schlüter®-KERDI collar with Schlüter®-KERDI-COLL-L



If necessary, the matching prefabricated parts Schlüter®-KERDI-KERS may be used for waterproofing sloped areas.

Schlüter®-KERDI-LINE-H 50 G2
Horizontal drain
with water trap height of 50 mm

1. To achieve the minimum assembly height of 120 mm, shorten the adapter up to a minimum insertion depth of 15 mm.
2. Reattach the adapter to the channel body and screw it firmly into place.
3. Place the drain body on the adapter and push it in place.
4. Apply thin-bed adhesive on the level substrate in the area of the channel support and set the channel support in place. If necessary, apply spots of adhesive for height adjustment. Secure the drain body against adapter slippage. For wall installation, the channel body must be aligned in accordance with the distance from the wall and thickness of the wall covering.
5. Attach (on-site) drain pipe and align. Perform a leak test.
6. Apply the sloped screed (2%) of the shower area - if applicable over a suitable insulation layer. Schlüter®-BEKOTEC-DPS Dry Pack screed can be used for creating the sloped screed requirements.
7. Apply thin-bed adhesive to the screed. A notched trowel size of 3 x 3 or 4 x 4 mm is recommended for installing DITRA 25. Use size 6 x 6 mm for installing DITRA-HEAT.
8. Adhere Schlüter®-DITRA 25 or DITRA-HEAT, sealing seams with Schlüter®-KEBA band and Schlüter®-KERDI-COLL-L (see product data sheet 6.1 and 6.4).

... additional steps, as per Schlüter®-KERDI-LINE-H (from item 4).


Fig. 1.
Shorten adapter


Fig. 2.
Reattach adapter


Fig. 3.
Place drain body on adapter


Fig. 4.
Align the channel support


Fig. 5.
Align the drain pipe


Fig. 6.
Apply sloped screed


Fig. 7.
Apply thin-bed adhesive

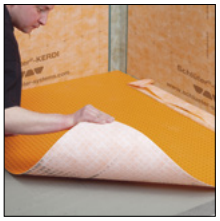


Fig. 8.
Adhere Schlüter®-DITRA-25 or -DITRA-HEAT

Schlüter®-KERDI-LINE-F
Horizontal drain forward facing

1. Place the supplied gasket on the outlet of the channel body (note position).

2. Now attach the drain body in place, by pushing onto the gasket.

3. Apply thin-bed adhesive on the even and level substrate and set the channel support in place. To offset uneven sections or for height adjustment, the channel support may also be installed and aligned over several, sufficiently spaced spots of adhesive or on a full layer of leveling screed.
   For perimeter wall installation, the channel body must be aligned in accordance with the thickness of the wall covering. For intermediate installation, use the supplied filling strip to create symmetrical dimensions for the channel support.

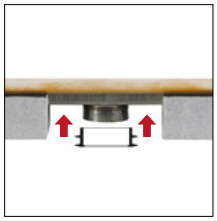
4. Now connect the drain body to the buildings drain system. Adjust the channel body with a spirit level and check for leaks.

5. Install the sloped screed (2%) of the shower area against the precisely installed and levelled Schlüter®-KERDI-LINE-F. Schlüter®-BEKOTEC-DPS Dry Pack screed can be used for creating the sloped screed requirements.

6. Once the screed is ready to bear weight, solidly embed Schlüter®-DITRA 25 on the screed area with thin-bed tile adhesive (recommended notched trowel size 3 x 3 mm or 4 x 4 mm). The tile format for installation over Schluter®-DITRA 25 must be at least 5 x 5 cm (see also Product Data Sheet 6.1).

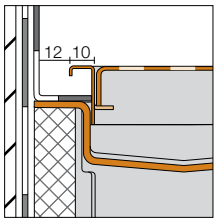
7. To adhere the Schlüter®-KERDI collar, apply the sealing adhesive Schlüter®-KERDI-COLL-L (see Product Data Sheet 8.4) to the adjoining waterproofing assembly with a 3 x 3 mm or 4 x 4 mm notched trowel and completely embed the Schlüter®-KERDI collar in this assembly, observing the curing times of all materials. Use Schlüter®-KERDI-COLL-L to create tightly sealed wall connections with the Schlüter®-KERDI-KEBA sealing band.


Re. 1.




Re. 2.


Re. 3.

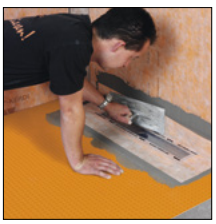



Re. 4.


Re. 4.


Re. 5.


Re. 6.


Re. 7.

Schlüter®-KERDI-LINE-V, -VS, -VOS
Vertical drain

1. The channel support is installed on a level substrate with the appropriate height. To offset uneven sections or for height adjustment, the channel support may also be precisely aligned on a layer of levelling screed.
   For wall installation, the channel body must be aligned in accordance with the thickness of the wall covering. For intermediate installation, use the supplied filling strip to create symmetrical dimension for the channel support.
   Note: If the building project is subject to sound insulation requirements, install a suitable sound insulation below the channel support and attach an edge insulation strip along the perimeter.
2. Fit the channel body into the channel support together with a custom cut drain pipe for connecting to the drainage system of the building. Perform a leak test.
3. Next abut the sloped tray Schlüter®-KERDI-SHOWER-L to the precisely installed Schlüter®-KERDI-LINE-V drainage channel at the correct height, flush with the upper edge of the channel support (see Product Data Sheet 8.8). As an alternative, you can also install a sloped screed at the correct height that is flush with the upper edge of the channel support.
4. To integrate the Schlüter®-KERDI collar, apply the sealing adhesive Schlüter®-KERDI-COLL-L (see Product Data Sheet 8.4) to the adjoining waterproofing assembly with a 3 x 3 mm or 4 x 4 mm notched trowel and completely embed the Schlüter®-KERDI collar in this assembly. Observe the curing times of all materials. Use Schlüter®-KERDI-COLL-L to tightly seal the wall connections with Schlüter®-KERDI-KEBA.

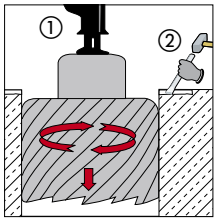


Fig 1.
Core drilling hole/floor structure opening


Fig 2.
Insert drain pipe


Fig 3.
Slide the sloped tray under the edge of the channel body


Fig 4.
Adhere KERDI collar with KERDI-COLL-L

Schlüter®-KERDI-LINE-V 50 G2
Vertical drain
with water trap height of 50 mm

1. Determine the position of the linear drainage and create the core drilling hole/floor opening for the drain body. Then place the drain body in this location.
2. To achieve the minimum assembly height of 48 mm, shorten the adapter up to a minimum insertion depth of 30 mm.
3. Reattach the adapter to the channel body and screw it firmly into place.
4. Apply thin-bed adhesive on the level substrate in the area of the channel support. Place the channel body with the channel support on the drain body and push it in place. If necessary, apply spots of adhesive for height adjustment. For wall installation, the channel body must be aligned in accordance with the distance from the wall and thickness of the wall covering.
5. Install the sloped screed (2%) of the shower area. Schlüter®-BEKOTEC-DPS Dry Pack screed can be used for creating the sloped screed requirements.
6. Apply thin-bed adhesive to the screed. A notched trowel size of 3 x 3 or 4 x 4 mm is recommended for installing DITRA 25. Use size 6 x 6 mm for installing DITRA-HEAT
7. Adhere Schlüter®-DITRA 25 or DITRA-HEAT, sealing seams with Schlüter®-BAND and Schlüter®-KERDI-COLL-L (see product data sheet 6.1 and 6.4).

... additional steps, as per Schlüter®-KERDI-LINE-H (from item 4).

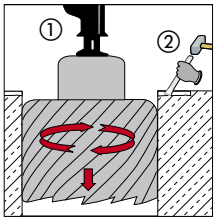


Fig 1.
Core drilling hole/ceiling opening


Fig 2.
Shorten adapter


Fig 3.
Reattach adapter


Fig 4.
Attach channel body with channel support


Fig 5.
Apply screed


Fig 6.
Apply thin-bed adhesive


Fig 7.
Adhere Schlüter®-DITRA-25 or -DITRA-HEAT

Product Overview

Channel lengths

	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800
KERDI-LINE-H	•	•	•	•	•	•	•	•	•	•	•	•	•	•
KERDI-LINE-H 50 G2	•	•	•	•	•	•	•	•	•	•	•	•	•	•
KERDI-LINE-F	•	•	•	•	•	•	•	•						
KERDI-LINE-V	•	•	•	•	•	•	•	•	•	•	•	•	•	•
KERDI-LINE-V 50 G2	•	•	•	•	•	•	•	•	•	•	•	•	•	•
KERDI-LINE-VS	•	•	•	•	•	•	•	•	•	•	•	•	•	•
KERDI-LINE-VOS			•	•	•	•	•	•						

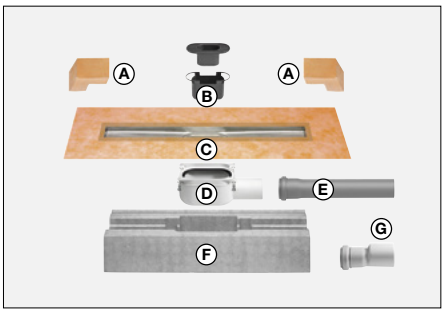
Frame and grate lengths

	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800
Frame, H = 19 mm	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Frame, H = 30 mm	•	•	•	•	•	•	•	•						
Designer grates A and B	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Designer grate C, tile pan	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Covering support D*	•	•	•	•	•	•	•	•	•	•	•	•	•	•

* The length of the selected covering support must match the channel length.

Product versions

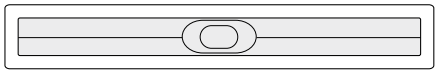
Schlüter®-KERDI-LINE-H
Horizontal drain with integrated odour trap



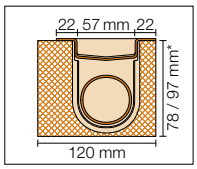
Drain capacity DN 40 = 0.5 l/s (30 l/min.)
Water trap height 25 mm

Drain capacity DN 50 = 0.6 l/s (36 l/min.)
Water trap height 30 mm

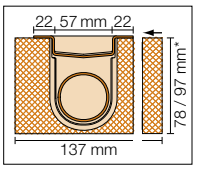
- A Corner seal (for lateral wall connection)
- B Two part odour trap
- C Channel body with waterproofing collar
- D Drain body
- E Drain pipe
- F Channel support
- G Transition from DN 40 to DN 50 (for KERDI-LINE 40 only)



L = 50 - 180 cm (in increments of 10 cm)
L 1 = 55 - 185 cm (in increments of 10 cm)



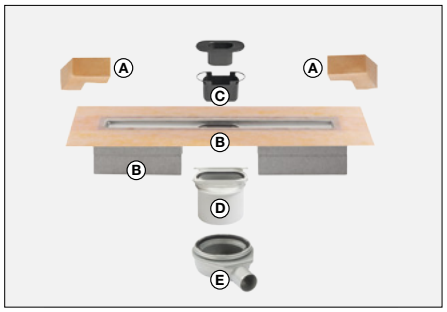
Cross section of perimeter installation



Cross section of intermediate installation

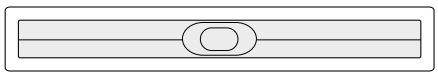
* Height of channel support:
DN 40 (40 mm) = 78 mm
DN 50 (50 mm) = 97 mm

Schlüter®-KERDI-LINE-H 50 G2
Horizontal drain with integrated odour trap

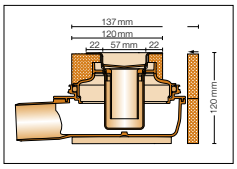


Drain capacity DN 50 = 0.8 l/s (48 l/min.)
Water trap height 50 mm

- A Corner seal (for upright lateral wall)
- B Channel body with waterproofing collar and channel support
- C Two-piece odour trap
- D Adapter
- E Drain body

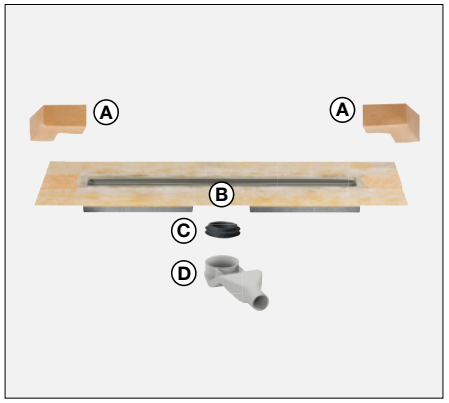


L = 50 - 180 cm (in increments of 10 cm)
L 1 = 55 - 185 cm (in increments of 10 cm)



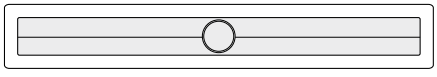
Cross section

Schlüter®-KERDI-LINE-F
Horizontal drain with odour trap integrated into the drain body

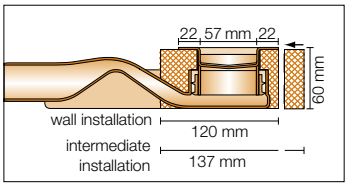


Drain capacity DN 40= 0.45l/s (26 l/min.)
Water trap height 25 mm

- A Corner seal (for lateral wall connection)
- B Channel body with waterproofing collar and channel support
- C Gasket
- D Drain pipe
- E Drain body with odour trap

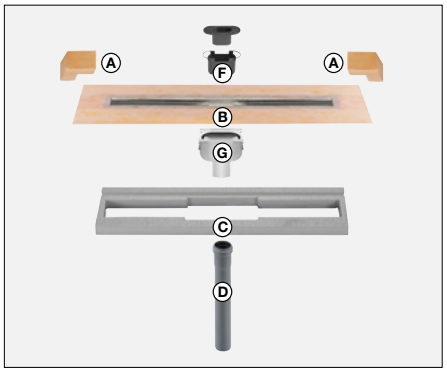


L = 50 / 60 / 70 / 80 / 90 / 100 / 110 / 120 cm
L 1 = 55 / 65 / 75 /85 / 95 / 105 / 115 / 125 cm



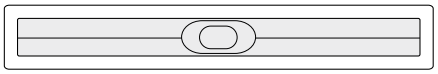
Cross section

Schlüter®-KERDI-LINE-V
Vertical drain
with integrated odour trap



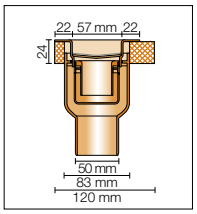
Drain capacity DN 50 = 0.8 l/s (48 l/min.)

- A Corner seal (for lateral wall connection)
- B Channel body with waterproofing collar
- C Channel support
- D Drain pipe
- F Two part odour trap
- G Drain body

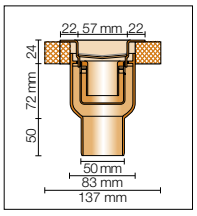


L = 50 - 180 cm (in increments of 10 cm)

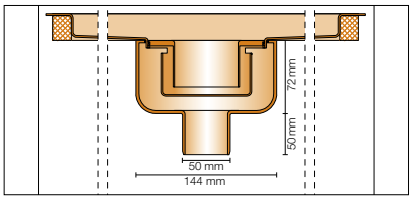
L 1 = 55 - 185 cm (in increments of 10 cm)



Cross section of perimeter installation

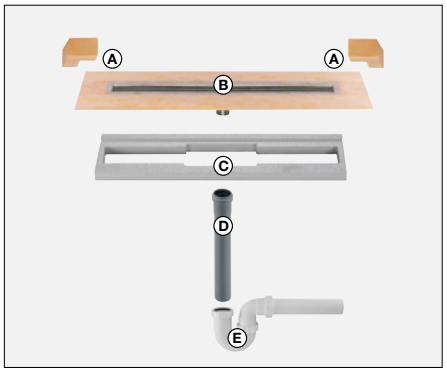


Cross section of intermediate installation



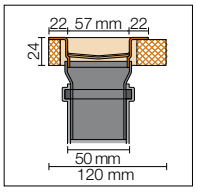
Longitudinal view of perimeter/intermediate installation

Schlüter®-KERDI-LINE-VS /-VOS
Vertical drain with water trap

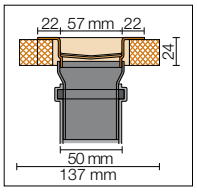


Drain capacity DN 50 = 1 l/s (60 l/min.)

- A Corner seal (for lateral wall connection)
- B Channel body with waterproofing collar
- C Channel support
- D Drain pipe
- E Water trap

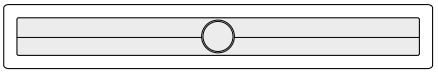


Cross section of perimeter installation



Cross section of intermediate installation

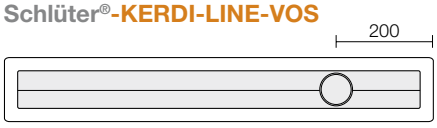
Schlüter®-KERDI-LINE-VS



L = 50 - 180 cm (in increments of 10 cm)

L 1 = 55 - 185 cm (in increments of 10 cm)

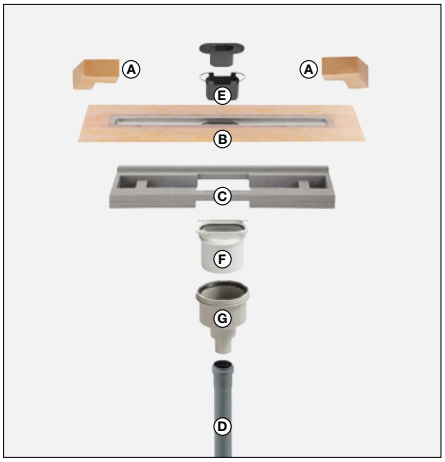
Schlüter®-KERDI-LINE-VOS



L = 70 / 80 / 90 / 100 / 110 / 120 cm

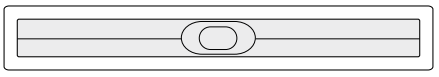
L 1 = 75 /85 / 95 / 105 / 115 / 125 cm

Schlüter®-KERDI-LINE-V 50 G2
Vertical drain
with integrated odour trap



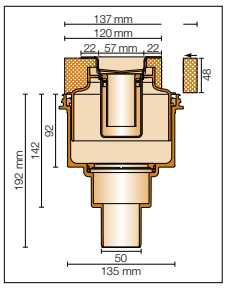
Drain capacity DN 50 = 1.0 l/s (60 l/min.)
Water trap height 50 mm

- A Corner seal (for lateral wall connection)
- B Channel body with waterproofing collar
- C Channel support
- D Drain pipe
- E Two-piece odour trap
- F Adapter
- G Drain body



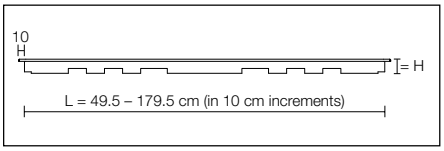
L = 50 - 180 cm (in increments of 10 cm)

L 1 = 55 - 185 cm (in increments of 10 cm)

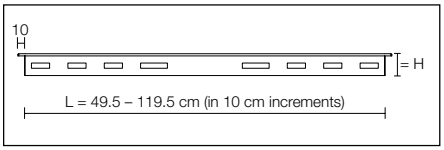


Cross section

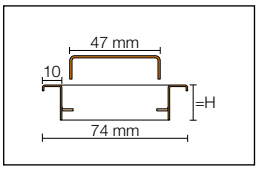
Frame, H= 19 mm
…for coverings with thicknesses from 3 to 15 mm



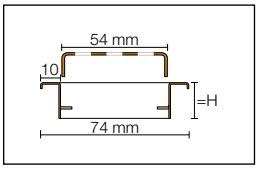
Frame, H= 30 mm
…for coverings with thicknesses from 13 to 25 mm



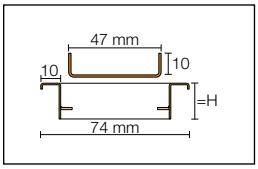
Designer Grate A



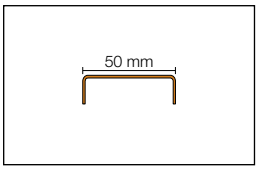
Designer Grate B



Designer Grate C, tile pan
… for covering thicknesses up to 10 mm



Designer Grate D, frameless tile support
… suitable for all covering thicknesses



* The length of the selected covering support must match the channel length.

Text template for tenders:

_____Units Schlüter®-KERDI-LINE as a linear drainage made of formed stainless steel V4A with a factory-attached Schlüter®-KERDI collar on the flange, for flush installation with a sloped tray or screed for Schlüter®-KERDI-LINE –H or -V or with screed if using Schlüter®-KERDI-LINE H, -H 50 G2, -V, -VS, VOS, V 50 G2, -F

■ in the wall area
■ intermediate within the area
■ with horizontal drain
■ DN 40 ■ DN 50
■ with vertical drain
■ with integrated odour trap
■ with external pipe siphon

to be installed including the matching frame with grate.

Length:

■ 50 cm ■ 60 cm ■ 70 cm ■ 80 cm
■ 90 cm ■ 100 cm ■ 110 cm ■ 120 cm
■ 130 cm ■ 140 cm ■ 150 cm ■ 160 cm
■ 170 cm ■ 180 cm

Frame and grate

■ 19 mm for tile thicknesses from 3 – 15 mm
■ 30 mm for tile thicknesses from 13 – 25 mm

To be properly aligned as part of the installation of the surface covering and installed with designer grate:

■ A Closed
■ B Perforated
■ C Tile pan
■ D Covering support (frameless)

…while observing the manufacturer's instructions.

Art. no: _____
Material: _____ ...../m
Labour: _____ ...../m
Total price: _____ ...../m

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